

EDUCATION

University of Pennsylvania | School of Engineering
Rachleff Scholar

Philadelphia, PA
Expected May 2026

- BSE in Artificial Intelligence
- *Cumulative GPA: 3.87/4*
- *Coursework:* Theory of Machine Learning, Learning with Conditional Guarantees, Convex Optimization, Applied Machine Learning, Natural Language Processing, Ethical Algorithm Design, Algorithmic Game Theory

RESEARCH EXPERIENCE

Synthetic Data Generation for Sortition Algorithms | *In Progress*
Undergraduate Thesis With Prof. Surbhi Goel (UPenn) and Prof. Bailey Flanigan (MIT)

Near-Optimal Dropout-Robust Sortition | *AISTATS 2026 (Spotlight)*
Maya Gambhir, Bailey Flanigan (MIT), Aaron Roth (UPenn)

- Proposed a minimax optimization algorithm for selecting representative panels robust to dropouts.
- Proved low-regret convergence to the optimal value with high probability for sampled panels.
- Implemented and evaluated algorithmic model with real world data

Conformal Language Model Reasoning with Coherent Factuality | *ICLR 2025 (Poster)*
*Maya Gambhir**, *Maxon Rubin-Toles** (Harvard), *Keshav Ramji (IBM)*, *Aaron Roth (UPenn)*, *Surbhi Goel (UPenn)*

*denotes equal contribution

- Developed a novel scoring mechanism accounting for inter-claim dependencies, optimizing correctness and coherence.
- Proved theoretical guarantees of correctness on outputs from a novel post processing algorithms
- Achieved 90% factuality while retaining 80% or more of the original model outputs
- **NeurIPS 2024 Workshop** in Statistics for LLMs; **ICLR 2025**.

Emotion Prediction for News Data | *2023*
UPenn Computational Social Science Lab

- Used the ChatGPT API and other machine learning models to evaluate sentiment on news data
- Iteratively adjusted API calls for effective quote extraction and plotted various error rates.
- Provided weekly code updates, collaborated to debug and improve model performance.

WORK EXPERIENCE

- Teaching Assistant, **CIS 5230: Ethical Algorithm Design** | *Jan. 2026 - May 2026*
- Teaching Assistant, **CIS 3333: Mathematics of Machine Learning** | *Aug. 2025 - Dec. 2025*
- Teaching Assistant, **CIS 1600: Mathematical Foundations of CS** | *June 2025 - Aug. 2025*
- Data Engineering Intern, **Munich Re** | *June 2023 – Aug. 2023* | New York City, NY

PROJECTS

Reinforcement Learning with Human Feedback Literature Review | 2025

- Surveyed recent advances in preference aggregation (axiomatic, diversity-aware, etc.) for RLHF.
- Proposed structured frameworks for robust and fairness-aware subpopulation reward modeling.

Noise Level Guarantees in MCPT via Conformal Prediction Methods | 2024

- Conducted a comprehensive literature review on Monte Carlo Path Tracing, the Rendering Equation, and conformal prediction techniques
- Synthesized findings and the proposed algorithm into a ten-page research paper.
- Proposed an algorithm to guarantee low noise levels in Monte Carlo Path Tracing simulations, optimizing sample efficiency to address computational constraints.

Movie Review Sentiment Analysis | 2023

- Preprocessed IMDb review data using PCA, TfidfVectorizer, and WordNet lemmatization.
- Trained AdaBoost models with logistic regression and decision trees; built and tuned PyTorch neural networks.
- Visualized training performance across architectures and hyperparameters..

FELLOWSHIPS/AWARDS

- **AI Academic Excellence Award, Raj and Neera Singh BSE in AI Program (2026)**
- **Wolf-Hallac Award, Penn Engineering (2026):** *recognizes the outstanding graduating female senior from Penn Engineering (top 10% GPA, leadership, and community impact)*
- **Computing Research Association Undergraduate Research Award, Honorable Mention (2025)**
- **Rachleff Scholars Program, University of Pennsylvania:** *selected for a small cohort of twelve Penn Engineering undergraduates, 10-week paid summer research fellowship with faculty mentorship*

LEADERSHIP

President, Penn Six Comedy Acapella | May 2023 – Present

- Designed and implemented a novel collaborative structure for recruitment, rehearsal, and show production tailored to the group's no-audition model.
- Fostered a creative, feedback-driven environment to improve music performance, comedy writing, and group cohesion.